System And Method For Adaptive Partitioning Of Circuit Components During Simulation

Abstract of the Disclosure

A system for adaptive partitioning of circuit components during simulating of a circuit having a hierarchical data structure includes a simulator module having one or more computer programs for 1) selecting a group of leaf circuits from the first branch and the second branch for simulation, where each leaf circuit is represented by a matrix comprising a set of equations, 2) determining a strength of coupling between two or more leaf circuits of the group in accordance with a set of predetermined electrical coupling criteria, 3) if two or more leaf circuits are deemed be strongly coupled, combining the corresponding matrix of each strongly coupled leaf circuit into a combined matrix, and 4) performing computation for the two or more strongly coupled leaf circuits in accordance with the combined matrix. The system adaptively adjusts the group circuit matrix for computing a group of circuits according to the strength of coupling between the circuits. Hence, it achieves higher simulation performance by reducing either the size of the solver matrix when the circuits are loosely connected to each other, or by reducing the number of computational repetitions due to the communication of changes of signal conditions between circuits by combining the individual circuit matrices when such circuits are closely coupled to each other.